

Archives of
Microbiology

Founded in 1930 as
Archiv für Mikrobiologie

Volume 131 1982

Managing Editors:

G. Drews · J. L. Ingraham · H. G. Schlegel

Editorial Board

K. Altendorf, Osnabrück
W. Boos, Konstanz
V. Braun, Tübingen
N. G. Carr, Liverpool
G. Drews, Freiburg i. Br.
K. Esser, Bochum
S. Fukui, Kyoto
G. Gottschalk, Göttingen
R. Hütter, Zürich
J. L. Ingraham, Davis
H. W. Jannasch, Woods Hole

D. P. Kelly, Coventry
E. N. Kondratieva, Moscow
H. Larsen, Trondheim
M. Mandel, Houston
B. Marrs, Saint Louis
B. A. McFadden, Pullman
N. Pfennig, Konstanz
M. R. J. Salton, New York
H. G. Schlegel, Göttingen
H. Stolp, Bayreuth
R. Thauer, Marburg



Springer International

The exclusive copyright for all languages and countries, including the right for photo-mechanical and any other reproductions, also in microform, is transferred to the publisher.

The use of registered names, trademarks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

Authors of this journal can benefit from library and photocopy fees collected by WORT if certain conditions are met. If an author lives in the Federal Republic of Germany or in West Berlin it is recommended that he contacts Verwertungsgesellschaft WORT, Abteilung Wissenschaft, Goethestrasse 49, D-8000 München 2, for detailed information.

Die in der Zeitschrift veröffentlichten Beiträge sind urheberrechtlich geschützt. Alle Rechte, insbesondere das der Übersetzung in fremde Sprachen, vorbehalten. Kein Teil dieser Zeitschrift darf ohne schriftliche Genehmigung des Verlages in irgendeiner Form – durch Fotokopie, Mikrofilm oder andere Verfahren – reproduziert oder in eine von Maschinen, insbesondere von Datenverarbeitungsanlagen, verwendbare Sprache übertragen werden.

Auch die Rechte der Wiedergabe durch Vortrag, Funk- und Fernsehsendung, im Magnettonverfahren oder ähnlichem Wege bleiben vorbehalten.

Fotokopien für den persönlichen und sonstigen eigenen Gebrauch dürfen nur von einzelnen Beiträgen oder Teilen daraus als Einzelkopien hergestellt werden. Jede im Bereich eines gewerblichen Unternehmens hergestellte oder benutzte Kopie dient gewerblichen Zwecken gem. § 54 (2) UrhG und verpflichtet zur Gebührenzahlung an die VG WORT, Abteilung Wissenschaft, Goethestraße 49, D-8000 München 2, von der die einzelnen Zahlungsmodalitäten zu erfragen sind.

Autoren dieser Zeitschrift können unter gewissen Voraussetzungen in die Individualausschüttung von Mitteln aus der Bibliothekantente und dem Fotokopieraufkommen mit einbezogen werden. Genaue Informationen erteilt die Verwertungsgesellschaft WORT, Abteilung Wissenschaft, Goethestraße 49, D-8000 München 2.

Die Wiedergabe von Gebrauchsnamen, Handelsnamen, Warenbezeichnungen usw. in dieser Zeitschrift berechtigt auch ohne besondere Kennzeichnung nicht zu der Annahme, daß solche Namen im Sinne der Warenzeichen- und Markenschutz-Gesetzgebung als frei zu betrachten wären und daher von jedermann benutzt werden dürften.

Springer-Verlag Berlin Heidelberg New York

Printed in Germany by Wiesbadener Graphische Betriebe GmbH, D-6200 Wiesbaden

© by Springer-Verlag Berlin · Heidelberg 1982

Contents

- Abe, S. S., Lovett, J. S.**
Microtubular Proteins and Tubulin Pool Changes During Zoospore Germination in the Fungus *Blastocladiella emersonii* 323
- Andreesen, J. R., see Dürre, P.** 255
- Archibald, A. R., see Clarke-Sturman, A. J.** 375
- Barder, M. J., see Crawford, D. L., et al.** 140
- Berchum, H. van, see Vries, W. de, et al.** 132
- Bock, E., see Seewaldt, E., et al.** 287
- Böhme, H., Pelzer, B.**
Comparative Immunological Characterization of Various Photosynthetic Cytochromes *c* from Pro- and Eukaryotic Algae 356
- Bonaly, R., see Botton, B.** 291
- Botton, B., Bonaly, R.**
Cell Wall Composition in the Ascomycete *Sphaerostilbe repens* at Different Developmental Stages 291
- Bronder, M., Mell, H., Stupperich, E., Kröger, A.**
Biosynthetic Pathways of *Vibrio succinogenes* Growing with Fumarate as Terminal Electron Acceptor and Sole Carbon Source 216
- Bronder, M., see Mell, H., et al.** 224
- Brunner, D. P., Graham, G. S., Treick, R. W.**
Exchange of Colicin Receptor Capacity Between Strains of *Escherichia coli* Sensitive or Resistant to Colicin K-K235 229
- Bryan, J., Saeed, N., Fox, D., Sastry, G. R. K.**
R68.45 Mediated Chromosomal Gene Transfer in *Agrobacterium tumefaciens* 271
- Buswell, J. A., Eriksson, K.-E., Gupta, J. K. Hamp, S. G., Nordh, I.**
Vanillic Acid Metabolism by Selected Soft-rot, Brown-rot, and White-rot Fungi 366
- Cantrell, M. A., Hickok, R. E., Evans, H. J.**
Identification and Characterization of Plasmids in Hydrogen Uptake Positive and Hydrogen Uptake Negative Strains of *Rhizobium japonicum* 102
- Castenholz, R. W., see Nelson, D. C.** 146
- Clarke, D. J., Kell, D. B., Morley, C. D., Morris, J. G.**
Butyricin 7423 and the Membrane H^+ -ATPase of *Clostridium pasteurianum* 81
- Clarke-Sturman, A. J., Archibald, A. R.**
Cell Wall Turnover in Phosphate and Potassium Limited Chemostat Cultures of *Bacillus subtilis* W 23 375
- Costa, M. S. da, Niederpruem, D. J.**
Arabitol Accumulation in *Geotrichum candidum* 283
- Crawford, D. L., Barder, M. J., Pometto III, A. L., Crawford, R. L.**
Chemistry of Softwood Lignin Degradation by *Streptomyces viridosporus* 140
- Crawford, D. L., Sutherland, J. B., Pometto III, A. L., Miller, J. M.**
Production of an Aromatic Aldehyde Oxidase by *Streptomyces viridosporus* 351
- Crawford, R. L., see Crawford, D. L., et al.** 140
- Drews, G., see Kaufmann, N., et al.** 313
- Drift, Ch. van der, see Janssen, D. B., et al.** 344
- Dürre, P., Andreesen, J. R.**
Anaerobic Degradation of Uric Acid via Pyrimidine Derivatives by Selenium-starved Cells of *Clostridium purinolyticum* 255
- Duine, J. A., Frank Jzn., J., Van der Meer, R.**
Different Forms of Quinoprotein Aldose-(Glucose-) Dehydrogenase in *Acinetobacter calcoaceticus* 27
- Egli, Th.**
Regulation of Protein Synthesis in Methylophilic Yeasts: Repression of Methanol Dissimilating Enzymes by Nitrogen Limitation 95
- Egli, Th., Haltmeier, Th., Fiechter, A.**
Regulation of the Synthesis of Methanol Oxidizing Enzymes in *Kloeckera* sp. 2201 and *Hansenula polymorpha*, a Comparison (Short Communication) 174
- Egli, Th., Käppeli, O., Fiechter, A.**
Regulatory Flexibility of Methylophilic Yeasts in Chemostat Cultures: Simultaneous Assimilation of Glucose and Methanol at a Fixed Dilution Rate 1
- Egli, Th., Käppeli, O., Fiechter, A.**
Mixed Substrate Growth of Methylophilic Yeasts in Chemostat Culture: Influence of the Dilution Rate on the Utilisation of a Mixture of Glucose and Methanol 8
- Ende, H. van den, see Lens, P. F., et al.** 241
- Eriksson, K.-E., see Buswell, J. A., et al.** 366
- Esaki, N., see Motosugi, K., et al.** 179
- Eschmann, K., Kaltwasser, H.**
Purine Uptake by *Alcaligenes eutrophus* H 16 191
- Evans, H. J., see Cantrell, M. A., et al.** 102
- Evans, L. V., see Millard, P.** 165
- Feuillade, J., Feuillade, M., Jolivet, E.**
Photosynthetic Metabolism in the Cyanophyta *Oscillatoria rubescens* D.C. II. Carbon Metabolism Under Nitrogen Starvation 107
- Feuillade, M., see Feuillade, J., et al.** 107
- Fèvre, M., Rougier, M.**
Autoradiographic Study of Hyphal Cell Wall Synthesis of *Saprolegnia* 212
- Fiechter, A., see Egli, Th., et al.** 1; 8; 174
- Fischer, U., see Steinmetz, M. A.** 19
- Flores, E., Herrero, A., Guerrero, M. G.**
Production of Ammonium Dependent on Basic L-Amino Acids by *Anacystis nidulans* 91
- Fontana, D. R., Haug, A.**
Effects of Sodium Chloride on the Plasma Membrane of Halotolerant *Dunaliella primolecta*: an Electron Spin Resonance Study 184
- Fox, D., see Bryan, J., et al.** 271
- Frank Jzn., J., see Duine, J. A., et al.** 27
- Friedrich, B., see Srivastava, S., et al.** 203
- Fukui, S., see Nishihara, H., et al.** 112
- Garcia, A. F., see Kaufmann, N., et al.** 313
- Gattenbeck, S., see Nordlöv, H.** 208

- Gatenbeck, S.**, see Svensson, M.-L. 129
- Giesbrecht, P.**, see Wecke, J., et al. 116
- Ginsburg, I.**, see Wecke, J., et al. 116
- Godde, D.**
Evidence for a Membrane Bound NADH-Plastoquinone-Oxidoreductase in *Chlamydomonas reinhardtii* CW-15 197
- Golecki, J. R.**, see Kaufmann, N., et al. 313
- Graham, G. S.**, see Brunner, D. P., et al. 229
- Guerrero, M. G.**, see Flores, E., et al. 91
- Gupta, J. K.**, see Buswell, J. A., et al. 366
- Häder, D.-P.**
Gated Ion Fluxes Involved in Photophobic Responses of the Blue-green Alga, *Phormidium uncinatum* 77
- Häder, D.-P., Poff, K. L.**
Spectrophotometric Measurement of Plastoquinone Photoreduction in Blue-green Alga, *Phormidium uncinatum* 347
- Haltmeier, Th.**, s. Egli, Th., et al. 174
- Hamp, S. G.**, see Buswell, J. A., et al. 366
- Harrison, A. P., Jr.**
Genomic and Physiological Diversity Amongst Strains of *Thiobacillus ferrooxidans*, and Genomic Comparison with *Thiobacillus thiooxidans* 68
- Haug, A.**, see Fontana, D. R. 184
- Hermansson, M., Kjelleberg, St., Korhonen, T. K., Stenström, T.-A.**
Hydrophobic and Electrostatic Characterization of Surface Structures of Bacteria and its Relationship to Adhesion to an Air-Water Interface 308
- Herrero, A.**, see Flores, E., et al. 91
- Herst, P. M.**, see Janssen, D. B., et al. 344
- Hickok, R. E.**, see Cantrell, M. A., et al. 102
- Higuchi, T.**, see Umezawa, T., et al. 124
- Hirsch, P.**, see Matzen, N. 32
- Houston Wang, C.**, see Koch, A. L. 36
- Imura, N.**, see Pan-Hou, H. S. 176
- Janssen, D. B., Herst, P. M., Joosten, H. M. L. J., Drift, Ch. van der**
Regulation of Amidase Formation in Mutants from *Pseudomonas aeruginosa* PAO Lacking Glutamine Synthetase Activity 344
- Jolivet, E.**, see Feuillade, J., et al. 107
- Jones, C. W.**, see McKay, A., et al. 43
- Joosten, H. M. L. J.**, see Janssen, D. B., et al. 344
- Käppeli, O.**, see Egli, Th., et al. 1; 8
- Kaltwasser, H.**, see Eschmann, K. 191
- Kaufmann, N., Reidl, H.-H., Golecki, J. R., Garcia, A. F., Drews, G.**
Differentiation of the Membrane System in Cells of *Rhodospseudomonas capsulata* After Transition from Chemotrophic to Phototrophic Growth Conditions 313
- Kell, D. B.**, see Clarke, D. J., et al. 81
- Keller, F., Schellenberg, M., Wiemken, A.**
Localization of Trehalase in Vacuoles and of Trehalose in the Cytosol of Yeast (*Saccharomyces cerevisiae*) 298
- Kelly, D. F.**, see Wood, A. P. 156; 160
- Khuller, G. K.**, see Trana, A. K., et al. 252
- Kienzl, P. F.**, see Peschek, G. A., et al. 261
- Kiuchi, N.**, see Matsuda, Y., et al. 87
- Kjelleberg, St.**, see Hermansson, M., et al. 308
- Kobata, A.**, see Matsuda, Y., et al. 87
- Koch, A. L., Houston Wang, C.**
How Close to the Theoretical Diffusion Limit do Bacterial Uptake Systems Function? 36
- Korhonen, T. K.**, see Hermansson, M., et al. 308
- Kraus, J.**, see Wolk, C. P. 302
- Kristjansson, J. K., Schönheit, P., Thauer, R. K.**
Different K_m Values for Hydrogen of Methanogenic Bacteria and Sulfate Reducing Bacteria: An Explanation for the Apparent Inhibition of Methanogenesis by Sulfate 278
- Kröger, A.**, see Bronder, M., et al. 216
- Kröger, A.**, see Mell, H., et al. 224
- Kuczynski, J. T., Radler, F.**
The Anaerobic Metabolism of Malate of *Saccharomyces baillii* and the Partial Purification and Characterization of Malic Enzyme 266
- Kurihara, N.**, see Ohisa, N., et al. 330
- Lahav, M.**, see Wecke, J., et al. 116
- Lauritsch, G.**, see Peschek, G. A., et al. 261
- Lens, P. F., Olofsen, F., Nederbragt, A., Musgrave, A., Ende, H. van den**
An Antiserum Against a Glycoprotein Functional in Flagellar Adhesion Between *Chlamydomonas eugametes* Gametes 241
- Lopez, J. M.**
GTP Pool Expansion is Necessary for the Growth Rate Increase Occurring in *Bacillus subtilis* after Amino Acids Shift-up 247
- Lovett, J. S.**, see Abe, S. S. 323
- Madry, N., Pape, H.**
Formation of Secondary Metabolism Enzymes in the Tylosin Producer *Streptomyces* T59-235 170
- Manian, S. S., O'Gara, F.**
Induction and Regulation of Ribulose Bisphosphate Carboxylase Activity in *Rhizobium japonicum* During Formate-Dependent Growth 51
- Matsuda, Y., Sakamoto, K., Kiuchi, N., Mizuochi, T., Tsubo, Y., Kobata, A.**
Two Tunicamycin-Sensitive Components Involved in Agglutination and Fusion of *Chlamydomonas reinhardtii* Gametes 87
- Matzen, N., Hirsch, P.**
Improved Growth Conditions for Hyphomicrobium sp. B-522 and Two Additional Strains 32
- Mayberry, W. R.**, see Wilkinson, B. J., et al. 338

- McKay, A., Quilter, J., Jones, C. W.
Energy Conservation in the Extreme Thermophile *Thermus thermophilus* HB8 43
- Mell, H., Bronder, M., Kröger, A.
Cell Yields of *Vibrio succinogenes* Growing with Formate and Fumarate as Sole Carbon and Energy Sources in Chemostat Culture 224
- Mell, H., see Bronder, M., et al. 216
- Millard, P., Evans, L. V.
Sulphate Uptake in the Unicellular Marine Red Alga *Rhodella maculata* 165
- Miller, J. M., see Crawford, D. L., et al. 351
- Miller, T. L., Wolin, M. J.
Enumeration of *Methanobrevibacter smithii* in Human Feces 14
- Mizuuchi, T., see Matsuda, Y., et al. 87
- Morley, C. D., see Clarke, D. J., et al. 81
- Morris, J. G., see Clarke, D. J., et al. 81
- Motosugi, K., Esaki, N., Soda, K.
Bacterial Assimilation of D- and L-2-Chloropropionates and Occurrence of a New Dehalogenase 179
- Muchl, R., see Peschek, G. A., et al. 261
- Musgrave, A., see Lens, P. F., et al. 241
- Nakajima, M., see Ohisa, N., et al. 330
- Nakatsubo, F., see Umezawa, T., et al. 124
- Nederbragt, A., see Lens, P. F., et al. 241
- Nelson, D. C., Castenholz, R. W.
Light Responses of *Beggiatoa* 146
- Niederpruem, D. J., see Costa, M. S. da 283
- Niekus, H. G. D., see Vries, W. de, et al. 132
- Nishihara, H., Toraya, T., Fukui, S.
Flocculation of Cell Walls of Brewer's Yeast and Effects of Metal Ions, Protein-Denaturants and Enzyme Treatments 112
- Nitschmann, W. H., see Peschek, G. A., et al. 261
- Nordh, I., see Buswell, J. A., et al. 366
- Nordlöv, H., Gatenbeck, S.
Enzymatic Synthesis of (+)- and (-)-Bisdechlorogedoin with Sulochrin Oxidase from *Pericillium frequentans* and *Oospora sulphurea-ochracea* 208
- O'Gara, F., see Manian, S. S. 51
- Ohisa, N., Kurihara, N., Nakajima, M.
ATP Synthesis Associated with the Conversion of Hexachlorocyclohexane Related Compounds 330
- Olofson, F., see Lens, P. F., et al. 241
- Pan-Hou, H. S., Imura, N.
Involvement of Mercury Methylation in Microbial Mercury Detoxication (Short Communication) 176
- Pape, H., see Madry, N. 170
- Pelzer, B., see Böhme, H. 356
- Peschek, G. A., Schmetterer, G., Lauritsch, G., Nitschmann, W. H., Kienzl, P. F., Muchl, R.
Do Cyanobacteria Contain "Mammalian-Type" Cytochrome Oxidase? 261
- Pfennig, N., see Widdel, F. 360
- Poff, K. L., see Häder, D.-P. 347
- Pometto III, A. L., see Crawford, D. L., et al. 140; 351
- Qualls, G. T., White, D.
Developmental Cell Cohesion in *Stigmatella aurantiaca* 334
- Quilter, J., see McKay, A., et al. 43
- Radler, F., see Kuczynski, J. T. 266
- Reidl, H.-H., see Kaufmann, N., et al. 313
- Rougier, M., see Fèvre, M. 212
- Saeed, N., see Bryan, J., et al. 271
- Sakamoto, K., see Matsuda, Y., et al. 87
- Sastry, G. R. K., see Bryan, J., et al. 271
- Schellenberg, M., see Keller, F., et al. 298
- Schleifer, K.-H., see Seewaldt, E., et al. 287
- Schmetterer, G., see Peschek, G. A., et al. 261
- Schönheit, P., see Kristjansson, J. K., et al. 278
- Seewaldt, E., Schleifer, K.-H., Bock, E., Stackebrandt, E.
The Close Phylogenetic Relationship of *Nitrobacter* and *Rhodopseudomonas palustris* (Short Communication) 287
- Slots, J.
Salient Biochemical Characters of *Actinobacillus actinomycetemcomitans* 60
- Sment, K. A., see Wilkinson, B. J., et al. 338
- Soda, K., see Motosugi, K., et al. 179
- Spronsen, E. A. van, see Trueba, F. J., et al. 235
- Srivastava, S., Urban, M., Friedrich, B.
Mutagenesis of *Alcaligenes eutrophus* by Insertion of the Drug-Resistance Transposon Tn5 203
- Stackebrandt, E., see Seewaldt, E., et al. 287
- Steinmetz, M. A., Fischer, U.
Cytochromes of the Green Sulfur Bacterium *Chlorobium vibrioforme* f. *thiosulfatophilum*. Purification, Characterization and Sulfur Metabolism 19
- Stenström, T.-A., see Hermansson, M., et al. 308
- Stouthamer, A. H., see Vries, W. de, et al. 132
- Stupperich, E., see Bronder, M., et al. 216
- Sutherland, J. B., see Crawford, D. L., et al. 351
- Svensson, M.-L., Gatenbeck, S.
The Pathway of D-Cycloserine Biosynthesis in *Streptomyces garyphalus* 129
- Thauer, R. K., see Kristjansson, J. K., et al. 278
- Toraya, T., see Nishihara, H., et al. 112
- Traas, J., see Trueba, F. J., et al. 235
- Trana, A. K., Verma, J. N., Khuller, G. K.
Age Dependent Alterations in Phospholipid Composition of a Saprophytic and a Pathogenic Strain of *Nocardia* 252

- Treick, R. W.**, see Brunner, D. P., et al. 229
- Trueba, F. J.**
On the Precision and Accuracy Achieved by *Escherichia coli*
Cells at Fission About their Middle 55
- Trueba, F. J., Spronsen, E. A. van, Traas, J.,
Woldringh, C. L.**
Effects of Temperature on the Size and Shape of
Escherichia coli Cells 235
- Tsubo, Y.**, see Matsuda, Y., et al. 87
- Umezawa, T., Nakatsubo, F., Higuchi, T.**
Lignin Degradation by *Phanerochaete chrysosporium*:
Metabolism of a Phenolic Phenylcoumaran Substructure
Model Compound 124
- Urban, M.**, see Srivastava, S., et al. 203
- Van der Meer, R.**, see Duine, J. A., et al. 27
- Verma, J. N.**, see Trana, A. K., et al. 252
- Vries, W. de, Niekus, H. G. D., Berchum, H. van,
Stouthamer, A. H.**
Electron Transport-Linked Proton Translocation at Nitrite
Reduction in *Campylobacter sputorum* Subspecies
bubulus 132
- Wecke, J., Lahav, M., Ginsburg, I., Giesbrecht, P.**
Cell Wall Degradation of *Staphylococcus aureus* by
Lysozyme 116
- White, D.**, see Qualls, G. T. 334
- Widdel, F., Pfennig, N.**
Studies on Dissimilatory Sulfate-Reducing Bacteria that
Decompose Fatty Acids. II. Incomplete Oxidation of
Propionate by *Desulfobulbus propionicus* gen. nov.,
sp. nov. 360
- Wiemken, A.**, see Keller, F., et al. 298
- Wilkinson, B. J., Sment, K. A., Mayberry, W. R.**
Occurrence, Localization, and Possible Significance of an
Ornithine-Containing Lipid in *Paracoccus denitrificans*
338
- Woldringh, C. L.**, see Trueba, F. J., et al. 235
- Wolin, M. J.**, see Miller, T. L. 14
- Wolk, C. P., Kraus, J.**
Two Approaches to Obtaining Low, Extracellular
Deoxyribonuclease Activity in Cultures of Heterocyst-
forming Cyanobacteria 302
- Wood, A. P., Kelly, D. P.**
Kinetics of Sugar Transport by *Thiobacillus* A2 156
- Wood, A. P., Kelly, D. P.**
Mechanisms of Sugar Transport by *Thiobacillus* A2 160

Indexed in Current Contents

